Target Hardware

- IO-DATA LANDISK Series
  This project's goal is to turn the IO-Data Network Attached Storage device into an freely accessible Linux box. The device is available in several configurations:
  - JP model **HDL-U Series** *(Production end in March, 2006)*, **LAN Tank**
  - US model **UHDL-160U**, **UHDL-300U**
  - EU model (OEM) **PX-EH25L**, **PX-EH40L** *(landisk_telnetd_v2.0.zip is available.)*
  - Storage-less model(compact flash media (Micro Drive) model) **USL-5P**

- Specification
  - Processor: SH4 266MHz(SH7751R)
  - Interface: 2 channels USB 2.0
  - Storage Capacity: HDD 160GB (HDL-160U), 250GB, 300GB, 400GB
  - Network Interface: 100BASE-TX/10BASE-T

The device comes with a Linux 2.4 inside. There is the possibility to update to 2.6 and it is also possible to install Debian in a different partition. This gives you the choice at startup to either boot as original or as a Debian system. In case of booting Debian, you will not have the original functions, like user accounts, NAS, FTP, etc, but instead a lot of other functions as you can install the software packages.

Linux Kernel


debian26 userland for SH4

- What is debian26
  We are calling this userland debian26 in locals.
  - debian etch at Nov 2005
compiled by gcc-4.0.2
The linuxSH kernel 2.6 image is included.
Xorg-X11 with USB2VGAs Support for connecting VGA display.
About 1900 debian packages compiled for SH4 can be used.

- base26-sh4-xxxxxxxxx-etch.tgz archive contains the following.

<table>
<thead>
<tr>
<th>Desired=Unknown/Install/Remove/Purge/Hold</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status=Not/Installed/Config-files/Unpacked/Failed-config/Half-installed</td>
</tr>
<tr>
<td>Err?=(none)/Hold/Reinst-required/X=both-problems (Status,Err: uppercase=bad)</td>
</tr>
<tr>
<td>Name</td>
</tr>
<tr>
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</tr>
<tr>
<td>ii</td>
</tr>
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</tbody>
</table>

*base26-sh4-xxxxxxx-etch.tgz* archive contains the following.

- linux-2.6.16-landisk.0.1 & landisk-tools-20051110 included
- linux-2.6.16.1 + LinuxSH
debianutils 2.15  Miscellaneous utilities specific to Debian
dhcp-client 2.0p15-19.1  DHCP Client
diff 2.8.1-11  File comparison utilities
dpkg 1.13.11  package maintenance system for Debian
dselect 1.13.11  user tool to manage Debian packages
e2fslibs 1.38-2  ext2 filesystem libraries
e2fsprogs 1.38-2  ext2 file system utilities and libraries
ed 0.2-20  The classic unix line editor
exim4 4.54-1  metapackage to ease exim MTA (v4) installation
exim4-base 4.54-1  support files for all exim MTA (v4) packages
exim4-config 4.54-1  configuration for the exim MTA (v4)
exim4-daemon-light 4.54-1  lightweight exim MTA (v4) daemon
findutils 4.2.25-1  utilities for finding files--find, xargs, an
gcc-4.0-base 4.0.2-2  The GNU Compiler Collection (base package)
gettext-base 0.14.5-2  GNU Internationalization utilities for the b
gpgv-udeb 1.4.1-1  minimal signature verification tool
grep 2.5.1.ds2-2  GNU grep, egrep and fgrep
groff-base 1.18.1.1-10  GNU troff text-formatting system (base syste
gzip 1.3.5-12  The GNU compression utility
hostname 2.91  utility to set/show the host name or domain
hotplug 0.0.20040329-25  Linux Hotplug Scripts
ifupdown 0.6.7  high level tools to configure network interf
info 4.8-1  Standalone GNU Info documentation browser
initscripts 2.86.ds1-4  Standard scripts needed for booting and shut
iptables 1.3.3-2  Linux kernel 2.4+ iptables administration to
iputils-ping 20020927-3  Tools to test the reachability of network ho
kernel-image-2.6.16-sh landisk.0.1  Linux kernel binary image for version 2.6.16
kexec-tools 1.101-2sh  kexec tool
klogd 1.4.1-17  Kernel Logging Daemon
laptop-detect 0.12.1  attempt to detect a laptop
libacl1 2.2.32-1  Access control list shared library
libattr1 2.4.25-1  Extended attribute shared library
libblkid1 1.38-2  block device id library
libbz2-1.0 1.0.2-10  high-quality block-sorting file compressor l
libc6 2.3.5-8  GNU C Library: Shared libraries and Timezone
libcap1 1.10-14  support for getting/setting POSIX.1e capabil
libcomerr2 1.38-2  common error description library
libconsole 0.2.3dbs-57  Shared libraries for Linux console and font
<table>
<thead>
<tr>
<th>Package</th>
<th>Version</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>libdb2</td>
<td>2.7.7.0-10</td>
<td>Berkeley database routines (run-time file)</td>
</tr>
<tr>
<td>libdb3</td>
<td>3.2.9-22</td>
<td>Berkeley v3 Database Libraries [runtime]</td>
</tr>
<tr>
<td>libdb4.2</td>
<td>4.2.52-18</td>
<td>Berkeley v4.2 Database Libraries [runtime]</td>
</tr>
<tr>
<td>libdb4.3</td>
<td>4.3.28-2</td>
<td>Berkeley v4.3 Database Libraries [runtime]</td>
</tr>
<tr>
<td>libgcc1</td>
<td>4.0.2-2</td>
<td>GCC support library</td>
</tr>
<tr>
<td>libgcrypt11</td>
<td>1.2.2-1</td>
<td>LGPL Crypto library - runtime library</td>
</tr>
<tr>
<td>libgdbm3</td>
<td>1.8.3-2</td>
<td>GNU dbm database routines (runtime version)</td>
</tr>
<tr>
<td>libgnutls11</td>
<td>1.0.16-14</td>
<td>GNU TLS library - runtime library</td>
</tr>
<tr>
<td>libgpg-error0</td>
<td>0.22-3</td>
<td>library for common error values and messages</td>
</tr>
<tr>
<td>libident</td>
<td>0.22-3</td>
<td>MIT Kerberos runtime libraries</td>
</tr>
<tr>
<td>libkrb53</td>
<td>1.3.6-5</td>
<td>OpenLDAP libraries</td>
</tr>
<tr>
<td>libldap2</td>
<td>5.4-9</td>
<td>Shared libraries for terminal handling</td>
</tr>
<tr>
<td>liblocale-gettext perl</td>
<td>1.05-1</td>
<td>Using libc functions for internationalization</td>
</tr>
<tr>
<td>liblockfile1</td>
<td>1.06</td>
<td>NFS-safe locking library, includes dotlockfile</td>
</tr>
<tr>
<td>liblzma</td>
<td>1.08-2</td>
<td>data compression library</td>
</tr>
<tr>
<td>libncurses5</td>
<td>5.4-9</td>
<td>Shared libraries for terminal handling</td>
</tr>
<tr>
<td>libncursesw5</td>
<td>5.4-9</td>
<td>Shared libraries for terminal handling (wide)</td>
</tr>
<tr>
<td>libnewt0.51</td>
<td>0.51.6-31</td>
<td>Not Erik's Windowing Toolkit - text mode win</td>
</tr>
<tr>
<td>libopencdk8</td>
<td>0.79-3</td>
<td>Open Crypto Development Kit (OpenCDK) (runtime)</td>
</tr>
<tr>
<td>libpam-modules</td>
<td>0.79-3</td>
<td>Pluggable Authentication Modules for PAM</td>
</tr>
<tr>
<td>libpam-runtime</td>
<td>0.79-3</td>
<td>Runtime support for the PAM library</td>
</tr>
<tr>
<td>libpam0g</td>
<td>0.79-3</td>
<td>Pluggable Authentication Modules library</td>
</tr>
<tr>
<td>libpcre3</td>
<td>6.4-1</td>
<td>Perl 5 Compatible Regular Expression Library</td>
</tr>
<tr>
<td>libpopt0</td>
<td>1.7-5</td>
<td>lib for parsing cmdline parameters</td>
</tr>
<tr>
<td>libsepol1</td>
<td>1.26-1</td>
<td>Authentication abstraction library</td>
</tr>
<tr>
<td>libsepol1</td>
<td>1.26-1</td>
<td>Authentication abstraction library</td>
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<tr>
<td>libssl0.9.7</td>
<td>0.9.7g-5</td>
<td>SSL shared libraries</td>
</tr>
<tr>
<td>libssl0.9.8</td>
<td>0.9.8a-3</td>
<td>SSL shared libraries</td>
</tr>
<tr>
<td>libstdc++-1.2-5c2</td>
<td>1.2.5-5</td>
<td>type-safe Signal Framework for C++ - runtime</td>
</tr>
<tr>
<td>libstdc++</td>
<td>2.0.4-7</td>
<td>The S-Lang programming library - runtime version</td>
</tr>
<tr>
<td>libssl2</td>
<td>1.38-2</td>
<td>command-line interface parsing library</td>
</tr>
<tr>
<td>libssl10.9.7</td>
<td>0.9.7g-5</td>
<td>SSL shared libraries</td>
</tr>
<tr>
<td>libssl10.9.8</td>
<td>0.9.8a-3</td>
<td>SSL shared libraries</td>
</tr>
<tr>
<td>libtasn1-2</td>
<td>0.2.13-1</td>
<td>Manage ASN.1 structures (runtime)</td>
</tr>
<tr>
<td>libtext-charwidth perl</td>
<td>0.04-3</td>
<td>get display widths of characters on the terminal</td>
</tr>
<tr>
<td>libtext-iconv perl</td>
<td>1.4-2</td>
<td>converts between character sets in Perl</td>
</tr>
<tr>
<td>libtext-wrap18n perl</td>
<td>0.06-4</td>
<td>internationalized substitute of Text::Wrap</td>
</tr>
<tr>
<td>Package</td>
<td>Version</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------------</td>
<td>----------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>libtextwrap1</td>
<td>0.1-3</td>
<td>Text-wrapping library with i18n - runtime</td>
</tr>
<tr>
<td>libusb-0.1-4</td>
<td>0.1.10a-21</td>
<td>Userspace USB programming library</td>
</tr>
<tr>
<td>libuuid1</td>
<td>1.38-2</td>
<td>Universally unique id library</td>
</tr>
<tr>
<td>libwrap0</td>
<td>7.6.dbs-8</td>
<td>Wietse Venema's TCP wrappers library</td>
</tr>
<tr>
<td>login</td>
<td>4.0.13-1</td>
<td>System login tools</td>
</tr>
<tr>
<td>logrotate</td>
<td>3.7.1-2</td>
<td>Log rotation utility</td>
</tr>
<tr>
<td>lsb-base</td>
<td>3.0-11</td>
<td>Linux Standard Base 3.0 init script function</td>
</tr>
<tr>
<td>mailx</td>
<td>8.1.2-0.20050715cvs-1</td>
<td>A simple mail user agent</td>
</tr>
<tr>
<td>makedev</td>
<td>2.3.1-78</td>
<td>Creates device files in /dev</td>
</tr>
<tr>
<td>man-db</td>
<td>2.4.3-3</td>
<td>The on-line manual pager</td>
</tr>
<tr>
<td>manpages</td>
<td>2.02-2</td>
<td>Manual pages about using a GNU/Linux system</td>
</tr>
<tr>
<td>mawk</td>
<td>1.3.3-11</td>
<td>A pattern scanning and text processing language</td>
</tr>
<tr>
<td>module-init-tools</td>
<td>3.2-pre9-2</td>
<td>Tools for managing Linux kernel modules</td>
</tr>
<tr>
<td>modutils</td>
<td>2.4.27.0-3</td>
<td>Linux module utilities</td>
</tr>
<tr>
<td>mount</td>
<td>2.12p-8</td>
<td>Tools for mounting and manipulating filesystem</td>
</tr>
<tr>
<td>nano</td>
<td>1.3.8-2</td>
<td>Free Pico clone with some new features</td>
</tr>
<tr>
<td>ncurses-base</td>
<td>5.4-9</td>
<td>Descriptions of common terminal types</td>
</tr>
<tr>
<td>ncurses-bin</td>
<td>5.4-9</td>
<td>Terminal-related programs and man pages</td>
</tr>
<tr>
<td>net-tools</td>
<td>1.60-16</td>
<td>The NET-3 networking toolkit</td>
</tr>
<tr>
<td>netbase</td>
<td>4.23</td>
<td>Basic TCP/IP networking system</td>
</tr>
<tr>
<td>netkit-inetd</td>
<td>0.10-10.2</td>
<td>The Internet Superserver</td>
</tr>
<tr>
<td>nvi</td>
<td>1.79-22</td>
<td>4.4BSD re-implementation of vi</td>
</tr>
<tr>
<td>passwd</td>
<td>4.0.13-1</td>
<td>Change and administer password and group dat</td>
</tr>
<tr>
<td>perl-base</td>
<td>5.8.7-7</td>
<td>The Pathologically Eclectic Rubbish Lister</td>
</tr>
<tr>
<td>procps</td>
<td>3.2.5-1</td>
<td>/proc file system utilities</td>
</tr>
<tr>
<td>psmisc</td>
<td>21.6-1</td>
<td>Utilities that use the proc filesystem</td>
</tr>
<tr>
<td>reiserfsprogs</td>
<td>3.6.19-1</td>
<td>User-level tools for ReiserFS filesystems</td>
</tr>
<tr>
<td>sasl2-bin</td>
<td>2.1.19-1.7</td>
<td>Programs for manipulating the SASL users dat</td>
</tr>
<tr>
<td>sed</td>
<td>4.1.2-8</td>
<td>The GNU sed stream editor</td>
</tr>
<tr>
<td>slang1a-utf8</td>
<td>1.4.9dbs-8</td>
<td>The S-Lang programming library with utf8 sup</td>
</tr>
<tr>
<td>syslogd</td>
<td>1.4.1-17</td>
<td>System Logging Daemon</td>
</tr>
<tr>
<td>sysv-rc</td>
<td>2.86.dsl-4</td>
<td>Standard boot mechanism using symlinks in /e</td>
</tr>
<tr>
<td>sysvinit</td>
<td>2.86.dsl-4</td>
<td>System-V like init</td>
</tr>
<tr>
<td>tar</td>
<td>1.15.1-2</td>
<td>GNU tar</td>
</tr>
<tr>
<td>tasksel</td>
<td>2.32</td>
<td>Tool for selecting tasks for installation on</td>
</tr>
<tr>
<td>tcpd</td>
<td>7.6.dbs-8</td>
<td>Wietse Venema's TCP wrapper utilities</td>
</tr>
<tr>
<td>telnetd</td>
<td>0.17-32</td>
<td>The telnet server</td>
</tr>
<tr>
<td>util-linux</td>
<td>2.12p-8</td>
<td>Miscellaneous system utilities</td>
</tr>
</tbody>
</table>

How to setup debian26

- Adding telnetd to the original system
  - IP address is set from the menu of LANDISK.(Password is "landisk").
  - A new user "landisk" is made from the menu of LANDISK.
  - Next, download `landisk_telnetd_v2.0.zip` from the web site "wizd on LANDISK". (open link)
  - It is unzipped and `update.tgz` is retrieved.
  - Update the firmware by specifying `update.tgz` in the menu of LANDISK.
  - After reboot, you can telnet into the device:
    - Open a telnet session, connect to the Landisk IP (port 23)
    - User account is landisk, password is "landisk"
    - To become root, "sudo su" is executed. (root password is "landisk")
    - To write it in rootfs, "mount -o rw,remount /" is executed.

- Debian26 is constructed to `/dev/hda3`
  - Install debian26 base system.
    ```
    # cd /mnt/hda3
    # tar vxfzp base26-sh4-xxxxxxxxx-etch.tgz
    # mv debian26/* .
    # rm -rf debian26
    ```
  - Some files need to be corrected. (Following is an example based on my environment. The IP in red have to be changed according to your setup.)
    - `/mnt/hda3/etc/hosts`
      ```
      127.0.0.1 localhost
      192.168.1.81 landisk
      ```
  - `/mnt/hda3/etc/hostname`
- `/mnt/hda3/etc/resolv.conf`

  ```
  nameserver 192.168.1.1  ( <- this is your ISP's DNS server)
  ```

- `/mnt/hda3/etc/network/interfaces`

  ```
  # Used by ifup(8) and ifdown(8). See the interfaces(5) manpage or
  # /usr/share/doc/ifupdown/examples for more information.
  auto lo
  iface lo inet loopback

  auto eth0
  iface eth0 inet static
  address 192.168.1.81
  netmask 255.255.255.0
  gateway 192.168.1.1
  ```

- `/mnt/hda3/etc/hosts.allow`

  ```
  ALL : 127.0.0.1 192.168.1. 192.168.0.
  ```

- `/mnt/hda3/etc/fstab`

  ```
  # UNCONFIGURED FSTAB FOR BASE SYSTEM
  #/dev/hda4     /      reiserfs defaults    0 1
  /dev/hda3     /      ext2     defaults    0 0
  none          /proc  proc     defaults    0 0
  /dev/hda2     swap   swap     defaults    0 0
  ```

- Setup boot-loader lilo-sh
  - copy some files from debian26(/dev/hda3) to /dev/hda1
# mount -o rw,remount /
# cp /mnt/hda3/boot/vmlinuz-2.6.16-sh /boot
# cp /mnt/hda3/boot/boot.b-selk /boot

- `/etc/lilo.conf` - dual boot setting between original environment and debian26

```plaintext
linear
boot=/dev/hda
disk=/dev/hda
bios=0x80
timeout=50
install=/boot/boot.b-selk
default=debian26

image=/boot/zImage
    label=linux
    root=/dev/hdal
    read-only
    append="mem=64M console=ttysC1,9600 root=/dev/hdal"

image=/boot/vmlinuz-2.6.16-sh
    label=debian26
    root=/dev/hda3
    read-only
    append="mem=64M console=ttysC1,9600 root=/dev/hda3"
```

- Setup lilo

```plaintext
# /mnt/hda3/sbin/lilo
Added debian26 *
Added linux
```

- reboot

```plaintext
# /home/LANDISK/scripts/powerctrl.sh reboot
```
• Login can be done by the telnet.

Debian GNU/Linux testing/unstable
landisk login: landisk
Password: landisk
Last login: Mon Nov 21 22:33:18 2005 from 192.168.1.2 on pts/1
Linux landisk 2.6.14-sh #1 Sat Nov 12 00:03:54 JST 2005 sh4 GNU/Linux

The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent permitted by applicable law.
landisk@landisk:~$ su
Password: landisk
landisk:/home/landisk#

• How to boot from original system:
  If you switch on the device, it will boot Debian from now on.
  However, there is still a way to boot the original linux by following procedure:
  o turn off the power.
  o power button ON, and quickly (max 5 seconds) power button OFF.
  o wait a 10 second.
  o power button ON

**Additional setup**

• apt-get

landisk:/# apt-get update
landisk:/# apt-get remove gpgv-udeb
landisk:/# apt-get install gpgv
landisk:/# wget http://ftp-master.debian.org/ziyi_key_2006.asc
landisk:/# apt-key add ziyi_key_2006.asc
landisk:/# apt-get update
landisk:/# apt-get upgrade

- gcc-4.0,g++-4.0,gcc-3.4,g++-3.4,etc

landisk:/# apt-get install dpkg-dev binutils gcc g++ make libncurses5-dev
landisk:/# apt-get install gcc-3.4 g++-3.4

- Xorg-X11

landisk:/# apt-get install x-window-system vncserver wdm

  o etc/X11/wdm/Xservers (If you use not USB2VGA dongle but VNC.)

  #:0 local /usr/bin/X11/X -nolisten TCP
   :0 local /usr/bin/Xrealvnc -geometry 1024x768 -depth 16

  o start wdm

landisk:/# /etc/init.d/wdm restart
Starting WINGs display manager: wdm.

### Additional packages and source

The following apt-line can be used.

```
deb http://eggplant.ddo.jp/www/download/debian26 etch main
```


### Screenshot


02.10.2006
From VNC client.

**linux workstation**

- Hardware
  LANDISK (HDL-160U)

USB keyboard with USB HUB
USB mouse
USB2VGA dongle (http://www.winischhofer.at/linuxsisusbvga.shtml)

Software
- linux-2.6.14-sh
- debian26
- Xorg-X11 (custom Ver.)

### Appendix - How to Self-build Kernel

- **setup**

  ```bash
  landisk:~# mkdir kernel
  landisk:~# cd kernel
  landisk:~/kernel# tar vxfz linux-2.6.14-sh-landisk.0.3.tgz
  ```

- **build**

  ```bash
  landisk:~/kernel# cd linux-2.6.14.3
  landisk:~/kernel/linux-2.6.14.3# cp arch/sh/configs/landisk_defconfig .config
  landisk:~/kernel/linux-2.6.14.3# make menuconfig
  landisk:~/kernel/linux-2.6.14.3# make
  ```

- It tests by using kexec.

  ```bash
  landisk:~/kernel/linux-2.6.14.3# kexec arch/sh/boot/zImage
  ```

### Appendix - debian Cross-toolchain on Intel machine

http://eggplant.ddo.jp/www/download/debian26/CROSS/
It contains the following.
Please install it by the dpkg -i *.deb command.
Appendix - More Information

The following are my Japanese pages.

- [The automatic translation by Excite](#)
- [No translation](#)

comment

- Thank you so much, works great for my Plextor drive -- NPM 2006-08-30 (水) 22:34:17
- Hi, I have a HDL-GX300, but broke my rc.local during hacking into it. Do you have any idea, who could help me? (Or who has an backup?) -- Jan 2006-05-10 (水) 23:03:20
  - HDL-GX300 is not SH architecture but ARM. Therefore, the HDL-GX300 user will not visit this page. -- kogiidenad 2006-05-10 (水) 23:29:05
• PLEXTOR OEM Model Reviews -- kinneko? 2006-03-30 (木) 09:13:08
  o http://www.benscustomcases.com/index.php?option=com_content&task=view&id=2328&Itemid=40
  o http://www.cluboc.net/reviews/hard_drives/Plextor/PX-EH25L/index.htm

• Hi. I'm from Germany and the urls don't work for me. i'm told the country code was not known. -- guest1? 2006-03-29 (水) 23:37:55
  o Don't mind. What is necessary is to read only the place which can be read. -- kinneko? 2006-03-30 (木) 09:13:08

最新の5件を表示しています。コメントページを参照